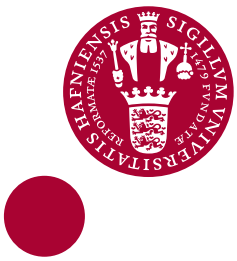


Vitamin D status in Danish 9-month-old children

Østergård, Mathilde; Madsen, Anja Lykke; Michaelsen, Kim F.; Mølgaard, Christian

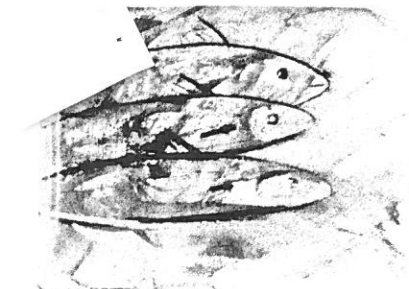
Published in:
Annals of Nutrition and Metabolism

DOI:
10.1159/000248278

Publication date:
2009

Document version
Publisher's PDF, also known as Version of record

print
ISSN 0250–6807
Ann Nutr Metab
55(suppl 1) 1–758 (2009)
55 | S1 | 09
online
ISSN 1421–9697
www.karger.com/anm
ISBN 978–3–8055–9204–8

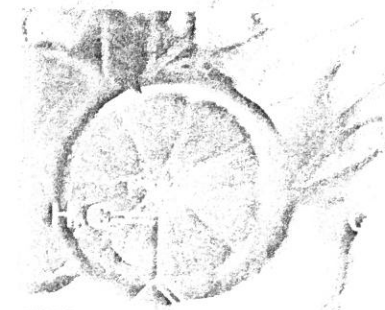


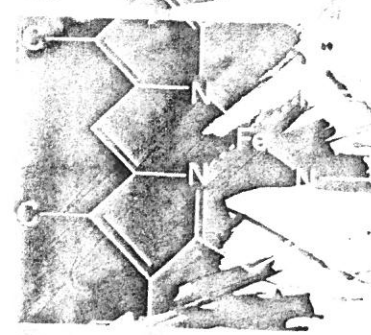
Annals of Nutrition & Metabolism

An Official Journal of

International Union of Nutritional Sciences (IUNS)

Federation of European Nutrition Societies (FENS)





ABSTRACTS
19th International Congress of Nutrition

October 4–9, 2009, Bangkok, Thailand

4–9 October 2009
BITEC, Bangkok, Thailand

Editors
K. Tontisirin, Bangkok
E. Wasantwisut, Bangkok

KARGER

S. Karger
Medical and Scientific Publishers
Basel · Freiburg · Paris
London · New York
Bangalore · Bangkok · Shanghai
Singapore · Tokyo · Sydney

DP2-03

EFFECTIVENESS OF ZINC SUPPLEMENTATION PLUS ORAL REHYDRATION SALTS COMPARED WITH ORS ALONE AS A TREATMENT FOR ACUTE DIARRHEA IN INFANTS AGED 1 TO 6 MONTHS IN A PRIMARY HEALTH CARE SETTING

Mazumder, Sarmila[1]; Bhandari, Nita[1]; Taneja, Sunita[1]; Dube, Brinda[1]; Agarwal, R. C.[2]; Mahalanabis, Dilip[3]; Fontaine, Olivier[4]; Black, Robert E.[5]; Bhan, Maharaj K.[6]

[1]Society for Applied Studies, Delhi, IND; [2]Badshah Khan Hospital, Haryana, IND; [3]Society for Applied Studies, Kolkata, IND; [4]World Health Organization, Switzerland, CHE; [5]John Hopkins Bloomberg School of Public Health, Maryland, USA; [6]Department of Biotechnology, New Delhi, IND

OBJECTIVE: To evaluate whether education and provision of zinc supplements to caregivers is effective in the treatment of acute diarrhea in infants aged 1 to 6 months.

METHODS: Six clusters of 30,000 population were randomly assigned to intervention and control sites. Government, private providers, and village health workers were trained to prescribe zinc and ORS in diarrheal episodes in the intervention areas, and ORS alone in the control areas. Outcomes were measured in two cross-sectional surveys commencing 3 months (survey 2) and 6 months (survey 3) after the start of the intervention.

RESULTS: In the two surveys, zinc was used in 36.7% and 62.1%, and ORS in 30.1% and 61.1% of diarrheal episodes in the four weeks preceding interviews in the intervention areas compared to 4.7% and 8.8% in control areas. The 24-hour and 2-week prevalence of diarrhea and acute lower respiratory infections were lower in the intervention communities (survey 2 and 3).

CONCLUSIONS: Diarrhea in the first 6 months of life is effectively treated when caregivers receive education along with easy access to supplies of ORS and zinc, without adversely affecting the use of ORS.

DP2-04

VITAMIN D STATUS IN DANISH 9-MONTH-OLD CHILDREN

Ostergaard, Mathilde; Madsen, Anja L.; Michaelsen, Kim F.; Molgaard, Christian

University of Copenhagen, Frederiksberg C, DNK

INTRODUCTION: Danish term infants are recommended vitamin D supplement of 10 µg/day on their first year. Objective To assess serum 25(OH)D in 9-month-old Danish children.

METHODS: The study is part of an observational cohort study (SKOT) following randomly selected term healthy children from age 9 to 36 months. All 312 (girls 163) Caucasian children, except for 10 mixed Caucasian-non-Caucasian, were examined at age 9 months. Serum 25(OH)D was assessed by chemiluminescence assay.

RESULTS: Weight and length were 9068±992 gram (mean ± SD) and 71.9 ±2.5 cm, respectively, 252 received vit D supplementation almost every day, 52 less often, and 8 were not supplemented. Serum 25(OH)D (n=255) was 77.2±22.7 nmol/L (range: 12–151). No significant sex difference (p=0.37) was observed. Prevalence of severe vitamin D deficiency (≤12.5 nmol/L) was 0.4% (n=1), deficiency (≤37.5 nmol/L) 2.8% (n=7), insufficiency (37.5-50.0 nmol/L) 7.8% (n=20) and sufficiency (50–250 nmol/L) 89.4% (n=228). There were higher levels in June–November (n=107) than December-May (n=148) (p=0.02), 81.2±21.9 and 74.3±22.8 nmol/L, respectively.

CONCLUSION: Nearly all received vit D supplementation, and 89.4% had sufficient serum 25(OH)D, however, there was an effect of season.

DP2-05

IRON-DEFICIENT RATS ARE MORE RESISTANT TO ZINC DEFICIENCY THAN IRON-ADEQUATE RATS

Kaganda, Joyceline E.

Tanzania Food and Nutrition Centre, Dar Es Salaam, TZA

Different responses of rats to zinc-deficient diets between iron-deficient and iron-adequate groups were determined. In Experiment 1, forty-eight male rats received a diet of 25 µgZn/g with either 40 µgFe/g or 3.9 µgFe/g diets for 21 days (stage 1). Thereafter, the same groups of rats were subjected to zinc-deficient (<1 µg/g) diets for 14 days (stage 2). Plasma, kidney and femur zinc concentrations decreased as zinc deficiency developed. Kidney and femur zinc levels were significantly higher in iron-deficient than in iron-ade Blood and bone marrow aminolevulinic acid dehydratase (ALA-D, EC and plasma alkaline phosphatase (ALK-P, EC 3.1.3.1) activities decreas zinc deficiency in iron adequate group, however, in iron-deficient group activities either increased (blood ALA-D) or remained constant (bone marrov ALA-D and plasma ALK-P) throughout the experiment. In Experiment 2, th survival time after consuming zinc-deficient diets (<1 µg/g) was compare between rats fed iron-deficient and rats fed iron-adequate diets. The length o survival for iron-deficient group was longer (133 ± 17 d) than the iron-adequat group (98 ± 13 d), ($p < 0.01$). In Experiment 3, the influence of dietary iror levels (2 µg/g, 13 µg/g or 40 µg/g) on osmotic fragility of erythrocyte an thiobarbituric acid-reactive substances (TBARS) in liver of rats fed either zinc deficient (<1 µg/g) or zinc-adequate (25 µg/g) diets was examined. Although th osmotic fragility of erythrocyte and TBARS values in liver increased in zinc deficient groups, rats fed with iron-adequate diets had higher hemolysis an TBARS values than low iron groups. These results suggest that iron-deficien rats are more resistant to zinc deficiency than iron-adequate rats.

DP2-06

ASSESSMENT OF ANAEMIA AND IRON STATUS OF SCHOOL AGE CHILDREN (AGED 7-12 YEARS) IN RURAL COMMUNITIES OF ABIA STATE, NIGERIA

[1]Ignatius A Onimawo, Patricia O Ukegbu, Victoria U Asumugha, Julie U Anyika, Helen Okudu, Chinyere A Echendu, Charles Nkwoala and Prosper Emebu

[1] Department of Biochemistry Ambrose Alli University PMB 14, Ekpoma Nigeria formerly of Human Nutrition and Dieteties, Michael Okpara Universit of Agriculture Umudike, NGA

RATIONALE AND OBJECTIVES: Anemia is highly prevalent in developin countries and has been associated with various factors including iron deficiency malaria and worm infestation particularly among children. This stud investigated iron status of school children aged 7-12 years in rural communitie of Abia state, Nigeria.

METHODS: A total of 249 school children, 120 males and 129 females, age between 7-12 years, were used in the study. Hemoglobin, hematocrit, and serur ferritin were used to determine anemia and iron status. The subjects were als screened for malaria parasites and worm infestation to determine their impac on anemia. C-reactive protein (CRP) was used as an indicator of inflammatio or infection. Socioeconomic, anthropometric, body composition and dietar information were also collected from the children using standard methods.

RESULTS: The prevalence of anemia was 82.6%, while iron deficiency wa 77.8%. The average daily iron intake was estimated to be 30% below th recommended allowance. Malaria parasites and worm infestation were hig in the children (93.2% and 41.8%, respectively). Anemia was significantl associated with helminth infestation, malaria parasite, and CRP.

CONCLUSION: Generally the result of the study indicates that there was high prevalence of anemia, thus, there is need for malaria and helminths contro intervention in these communities.

DP2-07

EFFECT OF FOOD INTAKE ON CONCENTRATION OF ETHANOL AND MARKERS OF ETHANOL CONSUMPTION

Dierkes, Jutta[1]; Helmecke, Anne[2]; Westphal, Sabine[2]; Luley, Claus[2]; Jachau, Katja[2]; Borucki, Katrin[2]

[1]Medical Faculty, Magdeburg, DEU; [2]University Magdeburg, Magdeburg, DEU

RATIONALE: Absorption of ethanol is influenced by the concurrent intake o food. It is, however, unknown whether urinary markers of ethanol consumptior e.g. ethylglucuronide (ETG) or 5-hydroxytryptophol (HTOL), are als influenced by food intake.

METHODS: We perfomed a randomized study with 13 healthy male volunteer (26 ± 3 years, BMI 24 ± 3 kg/m²) who received either ethanol only (0.7 g ethano per kg body weight) or equal amounts of ethanol after a standardized breakfas (560 kcal). Blood ethanol concentration was measured in 15 min intervals for 6 hours. Urinary ETG and HTOL were measured for three days. The area unde the curve (AUC) was calculated.

RESULTS: The AUCs of blood ethanol and ETG were significantly lower afte